

5. Claims

1. An apparatus for treatment of flat surfaces, the apparatus comprising a support assembly for supporting a treatment tool, which is to be applied to the flat surface supported outside the treatment tool, wherein said support assembly is designed to be brought in contact with said flat surface and operable for step-by-step reciprocating movement along said flat surface.
2. The apparatus according to claim 1, wherein the support assembly comprises:
 - a. Two units, floating relative to each other, carrying a printing tool, positioned with appropriate friction on a surface to be printed on.
 - b. Spring system loaded to hold the units as close as possible.
 - c. Said axles and their cams contacting flat surfaces of said units, creating horizontal and vertical relative motions.
 - d. Electromechanical mechanism, which is commanded from the outside, which provides rotational, synchronized motion to a system of parallel axles.
 - e. The movement of the support assembly is a sequence of discrete steps, each one comprised of following stages: first unit raised relative to the second one, moved a full step forward and lowered back to the surface; second unit raised relative to the first, moved a full step forward and lowered back to the surface.
 - f. Printing is activated when both units are on the surface.
2. The apparatus according to claim 1, wherein the tool is any other surface treating tool, such as scanner, pantograph, laser engraver etc.
3. A support assembly according to Claim 1, wherein the spring system consists of a single spring.
4. The apparatus according to claim 1, wherein the two units are sliding one on the other by tracks for the horizontal movement and the vertical relative motions are created by changing the length of legs.
5. The apparatus according to claim 1, wherein the legs length can be regulated to handle a surface of non-uniform height, such as in cases where the surface to be treated is laid over the surface which is stepped on.
6. The apparatus according to claim 1, wherein the tool mounting height can be regulated.
7. The apparatus according to claim 1, wherein the direction of the rotation of the axles is reversed, so that the stepping is in the opposite direction.
8. The apparatus according to claim 1, wherein the tool is another support assembly, so that a two-axes operation is possible.
9. A method for treatment of flat surfaces, the method comprising the steps of:
 - a. Mounting a treatment tool onto a support assembly, wherein the treatment tool is to be applied to the flat surface supported outside the treatment tool;
 - b. Placing the support assembly onto said flat surface; and
 - c. Driving the support assembly for step-by-step reciprocating movement thereof along said flat surface.